CLAIMS

1. Method of processing X streams of information symbols to be transmitted on Y communication channels, X and Y being positive integers, in which the Y communication channels simultaneously occupy a transmission resource organized as successive frames, in which the successive frames include compressed-mode frames having at least one inactive period during which no symbol is transmitted, in which the information symbols of each stream i ($1 \leq i \leq X$) are transmitted in the course of successive transmission time intervals each comprising F_i consecutive frames, F_i being a positive integer, and in which, for each transmission time interval relating to a stream i ($1 \leq i \leq X$), integers E_i, ΔN_i^{TTI} and ΔN_i^{cm} are defined such that $E_i > 0$, $\Delta N_i^{cm} < 0$ if the said transmission time interval comprises at least one compressed-mode frame and $\Delta N_i^{cm} = 0$ if the said transmission time interval does not comprise any compressed-mode frame,

the method comprising the following steps for each transmission time interval relating to a stream i ($1 \leq i \leq X$):

- forming a first sequence (c_i) of E_i symbols coded on the basis of information symbols of the said stream pertaining to the said transmission time interval;
- forming a second sequence of symbols (h_i) including $E_i + \Delta N_i^{TTI} + \Delta N_i^{cm}$ symbols extracted from the first sequence and $-\Delta N_i^{cm}$ marked symbols;
- forming a third sequence of symbols (q_i) by a permutation of the symbols of the second sequence;
- distributing the symbols of the third sequence into F_i segments of consecutive symbols, the F_i segments being respectively assigned to the frames of the said transmission time interval; and
- for each frame of the said transmission time interval, forming a fourth sequence (f_i) of symbols

extracted from the segment assigned to the said frame,

the said permutation and the placing of the marked symbols in the second sequence when the said transmission time interval comprises at least one compressed-mode frame being such that each marked symbol belongs, in the third sequence, to a segment assigned to a compressed-mode frame,

and the following steps for each frame:

- forming a fifth sequence of symbols (w) including the symbols of the fourth sequence output for the said frame in relation to each stream;
- distributing the symbols of the fifth sequence into Y segments of symbols, the Y segments being respectively assigned to the Y communication channels;
- for each communication channel, forming a sixth sequence (u_j) of symbols extracted from the segment assigned to the said communication channel;
- for each communication channel, forming a seventh sequence of symbols (v_j) by a permutation of the symbols of the sixth sequence; and
- transmitting on each communication channel, in time slots of the said frame, symbols extracted from the seventh sequence,

each of the said marked symbols being deleted before transmission on each communication channel when the said frame is in compressed mode, so as to husband the said inactive period in the course of the frame.

2. Method according to Claim 1, in which the said marked symbols are kept until the seventh sequences (v_j) when the said frame is in compressed mode, without being extracted from the seventh sequences for transmission.

3. Method according to Claim 1 or 2, in which additional marked symbols are inserted into the second or the fifth sequence (h_i, w), these symbols being kept until the seventh sequences (v_j) so as to be transmitted with zero transmission power.

4. Device for processing X streams of information symbols to be transmitted on Y communication channels, X and Y being positive integers, the Y communication channels simultaneously occupying a transmission resource organized as successive frames, the successive frames including compressed-mode frames having at least one inactive period during which no symbol is transmitted, the information symbols of each stream i ($1 \leq i \leq X$) being transmitted in the course of successive transmission time intervals each comprising F_i consecutive frames, F_i being a positive integer, integers E_i, ΔN_i^{TTI} and ΔN_i^{cm} being defined for each transmission time interval relating to a stream i ($1 \leq i \leq X$), with $E_i > 0$, $\Delta N_i^{cm} < 0$ if the said transmission time interval comprises at least one compressed-mode frame and $\Delta N_i^{cm} = 0$ if the said transmission time interval does not comprise any compressed-mode frame, the device comprising:

- means (21_i-23_i) for forming a first sequence (c_i) of E_i coded symbols on the basis of information symbols of each stream i ($1 \leq i \leq X$) pertaining to a transmission time interval;
- means (24_i-25_i) for forming, for each transmission time interval relating to a stream i ($1 \leq i \leq X$), a second sequence of symbols (h_i) including $E_i + \Delta N_i^{TTI} + \Delta N_i^{cm}$ symbols extracted from the first sequence and $-\Delta N_i^{cm}$ marked symbols;
- means (26_i) for forming a third sequence of symbols (q_i) by a first permutation of the symbols of each second sequence;
- means (27_i) for distributing the symbols of each third sequence, which is formed for a transmission time interval relating to a stream i ($1 \leq i \leq X$), into F_i segments of consecutive symbols respectively assigned to the frames of the said transmission time interval, and for forming F_i fourth sequences (f_i) of symbols respectively extracted from the segments assigned to the said frames;

- means (28-29) for forming, for each frame, a fifth sequence of symbols (w) including the symbols of the fourth sequence output for the said frame in relation to each stream i ($1 \leq i \leq X$);
- means (30) for distributing the symbols of each fifth sequence into Y segments of symbols respectively assigned to the Y communication channels;
- means (31_j) for forming a sixth sequence (u_j) of symbols extracted from the segment assigned to each communication channel; and
- means (32_j) for forming a seventh sequence of symbols (v_j) by a second permutation of the symbols of each sixth sequence, and for transmitting, in time slots of each frame on each communication channel, symbols extracted from the seventh sequence,

in which the first permutation and the placing of the marked symbols in the second sequence, which is formed for a transmission time interval relating to a stream when the said transmission time interval comprises at least one compressed-mode frame, are such that each marked symbol belongs, in the third sequence which is formed for the said transmission time interval, to a segment assigned to a compressed-mode frame, each of the said marked symbols being deleted before transmission on each communication channel so as to husband the said inactive period in the course of the frame.

5. Device according to Claim 4, in which the means (26_i-32_j) for forming the third, fourth, fifth, sixth and seventh sequences of symbols (q_i, f_i, w, u_j, v_j) are configured so as to keep the said marked symbols until the seventh sequences (v_j) which are formed for each compressed-mode frame, the said marked symbols not being extracted from the seventh sequences for transmission.

6. Device according to Claim 4 or 5, comprising means (25_i, 29) for inserting, into the second or fifth

sequences (h_i, w), additional marked symbols which are kept until the seventh sequences (v_j) so as to be transmitted with zero transmission power.

7. Radiocommunication base station comprising a processing device according to any one of Claims 4 to 6.

8. Method of processing Y digital streams (r'_j) obtained on the basis of a signal received and comprising estimates of information symbols respectively transmitted along Y communication channels simultaneously occupying a transmission resource organized as successive frames, and pertaining to X transport channels, X and Y being positive integers, in which the successive frames include compressed-mode frames having at least one inactive period during which no symbol is transmitted, and in which the estimates of information symbols pertaining to each transport channel i ($1 \leq i \leq X$) are received in the course of successive transmission time intervals each comprising F_i consecutive frames, F_i being a positive integer, the method comprising the following steps for each frame:

- forming, in relation to each communication channel j ($1 \leq j \leq Y$), a first sequence (v'_j) composed of estimates extracted from the time slots of the said frame and, when the said frame is in compressed mode, of marked estimates placed at positions corresponding to the inactive period of the said frame;
- for each communication channel, forming a second sequence of estimates (u'_j) by a permutation of the estimates of the first sequence;
- forming a third sequence of estimates (s') including estimates of the second sequence which is output for each communication channel; and
- distributing the estimates of the third sequence into X segments (f'_i) of consecutive estimates, the X segments being respectively assigned to the X transport channels,

and the following steps for each transmission time interval relating to a transport channel;

- forming a fourth sequence (q'_i) by concatenating the respective segments (f'_i) assigned to the said transport channel for the frames of the said transmission time interval;
- permuting the estimates of the fourth sequence and forming a fifth sequence (g'_i) of estimates extracted from the fourth permuted sequence (h'_i);
- ignoring each marked estimate of the fifth sequence, and forming a sixth sequence of symbols (c'_i) on the basis of the other estimates of the fifth sequence; and
- decoding the sixth sequence of estimates and outputting the decoded estimates (a'_i).

9. Method according to Claim 8, in which the forming of the third sequence (s') for at least one frame comprises a concatenating of the second sequences (u'_j) which are formed for the Y communication channels and a deleting of at least one estimate having a determined position in the concatenated sequence (w').

10. Method according to Claim 8, in which the formation of the fifth sequence (g'_i) for at least one transmission time interval relating to a transport channel comprises a deleting of at least one estimate having a determined position in the fourth permuted sequence (h'_i).

11. Device for processing Y digital streams (r'_j) obtained on the basis of a signal received and comprising estimates of information symbols respectively transmitted along Y communication channels simultaneously occupying a transmission resource organized as successive frames, and pertaining to X transport channels, X and Y being positive integers, the successive frames including compressed-mode frames having at least one inactive period during which no symbol is transmitted, and the estimates of information symbols pertaining to each transport channel i ($1 \leq i \leq X$) being received in the course of successive

transmission time intervals each comprising F_i consecutive frames, F_i being a positive integer, the device comprising:

- means (52_j) for forming, for each frame in relation to each communication channel, a first sequence (v'_j) composed of estimates extracted from the time slots of the said frame and, when the said frame is in compressed mode, marked estimates placed at positions corresponding to the inactive period of the said frame;
- means (51_j) for forming, for each frame in relation to each communication channel, a second sequence of estimates (u'_j) by permutation of the estimates of the first sequence;
- means (50, 49) for forming, for each frame, a third sequence of estimates (s') including estimates of the second sequence which is output for each communication channel;
- means (48) for distributing the estimates of the third sequence formed for each frame into X segments (f'_i) of consecutive estimates, the X segments being respectively assigned to the X transport channels;
- means (47_i) for forming a fourth sequence (q'_i) for each transmission time interval relating to a transport channel, by concatenating the respective segments (f'_i) assigned to the said transport channel for the frames of the said transmission time interval;
- means (46_i, 45_i) for permuting the estimates of the fourth sequence which is formed for each transmission time interval relating to a transport channel, and for forming a fifth sequence (g'_i) of estimates extracted from the fourth permuted sequence (h'_i);
- means (44_i) for deleting each marked estimate of the fifth sequence which is formed for each transmission time interval relating to a transport channel, and for forming a sixth sequence of

symbols (c'_i) on the basis of the other estimates of the fifth sequence; and

- means (43_1-41_I) for decoding the sixth sequence of estimates which is formed for each transmission time interval relating to a transport channel, so as to output the decoded estimates (a'_i).

12. Device according to Claim 11, in which the means for forming the third sequence of estimates (s') comprise means (50) for concatenating the second sequences (u'_j) which are formed for the Y communication channels and means (49) for deleting at least one estimate having a determined position in the concatenated sequence (w').

13. Device according to Claim 11, in which the means for forming the fifth sequence (g'_i) comprise means (45_i) for deleting at least one estimate having a determined position in the fourth permuted sequence (h'_i).

14. Radiocommunication terminal, comprising a processing device according to any one of Claims 11 to 13.